faces binding peptide, a silicon binding peptide, an SP1-CBD fusion protein and a cysteine substitution.

[0072] According to some embodiments of the present invention, the modified sequence of the first and the second SP1 monomers bind non-identical substances.

[0073] According to some embodiments of the present invention, the heteromoeric composition is a dodecamer.

[0074] According to an aspect of some embodiments of the present invention there is provided a composition of matter comprising a first inorganic substance complexed with a modified SP1 polypeptide dodecamer and a second inorganic substance complexed with the modified SP1 polypeptide dodecamer, wherein the first and the second inorganic substances are complexed via a first and a second binding region of the SP1 polypeptide dodecamer, and wherein the SP1 polypeptide is characterized by:

[0075] i) at least 65% amino acid homology to SEQ ID NO:4;

[0076] ii) stable dimer-forming capability; and

[0077] iii) at least one conserved amino acid sequence in at least one region corresponding to amino acids 9-11, 44-46 and/or 65-73, of SEQ ID NO:4.

[0078] According to some embodiments of the invention, the at least one conserved amino acid sequence is selected from the group consisting of "HAFESTFES" (65-73 of SEQ ID NO:4), "VKH" (9-11 of SEQ ID NO:4) and "KSF" (44-46 of SEQ ID NO:4).

[0079] According to some embodiments of the present invention, the isolated chimeric polypeptide having an amino acid sequence as set forth in SEQ ID NO: 3 or SEQ ID NO: 1.

[0080] According to some embodiments of the present invention, at least one of the first or second inorganic substances is complexed with the modified SP1 polypeptide dodecamer by a non-covalent bond.

[0081] According to some embodiments of the present invention, at least one of the first or second inorganic substances are complexed with said modified SP1 polypeptide dodecamer by a covalent bond.

[0082] According to some embodiments of the present invention, at least one of the binding regions is a carbon nanotube or graphitic surface binding peptide and the second binding region is not a carbon nanotube or graphitic surface binding peptide.

[0083] According to some embodiments of the present invention, at least one of the binding regions of the first inorganic substance is a carbon nanotube or graphitic surface and the second inorganic substance is a polymer, a fabric or a polymeric fabric.

[0084] According to some embodiments of the present invention, the first binding region is a carbon nanotube or graphitic surface binding peptide and the second binding region is a silicon binding peptide.

[0085] According to some embodiments of the present invention, the SP1 polypeptide dodecamer comprises an SP1 polypeptide having an amino acid sequence as set forth in any of SEQ ID NOs: 1-3, 6, 8, 9, 14-18 and 86.

[0086] According to some embodiments of the present invention, the first inorganic substance is a carbon nanotube or graphitic surface.

[0087] According to another aspect of some embodiments of the present invention, there is provided a method of dispersing a substance in a solvent, the method comprising contacting the substance with a composition of matter or an isolated chimeric SP1 polypeptide as set forth hereinabove, in a manner to form a complex between the substance and the composition of matter or an isolated chimeric SP1 polypeptide; and

[0088] contacting the complex with a solvent so as to form a solution or suspension;

[0089] thereby dispersing the substance in the solvent.

[0090] According to some embodiments of the present invention, the solvent is an aqueous or organic solvent.

[0091] According to some embodiments of the present invention, the solvent is epoxy.

[0092] According to some embodiments of the present invention, the substance is a carbon nanotube.

[0093] Unless otherwise defined, all technical and/or scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which the invention pertains. Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of embodiments of the invention, exemplary methods and/or materials are described below. In case of conflict, the patent specification, including definitions, will control. In addition, the materials, methods, and examples are illustrative only and are not intended to be necessarily limiting.

BRIEF DESCRIPTION OF THE DRAWINGS

[0094] The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee. Some embodiments of the invention are herein described, by way of example only, with reference to the accompanying drawings and images. With specific reference now to the drawings and images in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of embodiments of the invention. In this regard, the description taken with the drawings and images makes apparent to those skilled in the art how embodiments of the invention may be practiced.

[0095] In the drawings:

[0096] FIGS. **1**A-B are computer-generated presentations of the M43C ΔNSP1 (SEQ ID NO:1) and L81C ΔNSP1 (SEQ ID NO:2) mutants as described in the background art, wherein FIG. **1**A presents the M43C ΔNSP1(SEQ ID NO:1) mutant exhibiting thiol groups at the protein inner ring or pore (green), and FIG. **1**B presents the L81C ΔNSP1(SEQ ID NO:2) mutant exhibiting thiol groups on the protein's outer rim (red);

[0097] FIGS. **2**A-B are photographs of SDS-PAGE gel runs, performed for M43C SP1(SEQ ID NO:1) and L81C SP1(SEQ ID NO:2) mutants expression and stability experiments, wherein FIG. **2**A showing the separation on PAGE of M43C SP1 from total bacterial extract before (lane 1) and after (lane 2) IPTG induction (the band of the M43C SP1 monomer is encircled with a solid line); bacterial soluble fraction not boiled (lanes 3, the band of the dodecamer is encircled with a dashed line) and boiled (lane 4, the band of the monomer is encircled with a solid line); bacteria inclusion bodies (lane 5); bacterial soluble fraction after heat treatment at 85° C. for 30 minutes) un-boiled and boiled (lanes 6 and 7 respectively); purified protein un-boiled and boiled (lanes 8 and 9, respectively); stability treatments sample exposed to 85° C., 100° C. and proteinase k (lanes 10, 11 and 12 respectively), and wherein FIG. **2**B showing the analysis of L81C SP with samples in lanes 1-5 exposed to the same conditions